



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

Military Operations in Urban Terrain Advanced Concept Technology Demonstration (MOUT ACTD)

Robert M. Pizzola

**U.S. Army Armament Research Development &
Engineering Center**

Picatinny Arsenal NJ

201-724-7908 rpizzola@pica.army.mil

Advanced technologies and concepts for MOUT dominance



MOUT ACTD: The Environment, the Need



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

*...the most likely, complex and resource
intensive battlefield of
the 21st Century*

*Non-Combatants &
Restrictive Rules of
Engagement*

*Modern
Construction,
Reinforced Walls*



*Densely
Compacted
Areas*

High Rise Buildings

*Electro-magnetic
Interference*

...reduced effects of US technology

Advanced technologies and concepts for MOUT dominance



MOUT ACTD Objectives



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

Improve the Operational capabilities of soldiers and Marines in MOUT thru:

- Improved Command, Control, Communications, Computers and Intelligence (C4I)
- Improved Engagement (both lethal and non-lethal)
- Improved Force Protection

User Lead
(TRADOC, MCCDC)

Requirements

Pull

DSB 1994
MOBA Study
Genesis

CINC
Sponsor:
CINCSOC



Advanced technologies and concepts for MOUT dominance



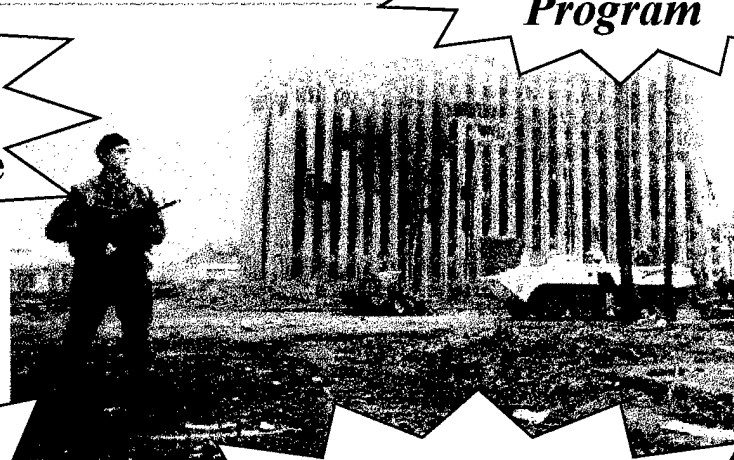
MOUT ACTD Mission



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

**Evaluate
advanced technologies
to achieve
technological dominance
in MOUT**

**Joint
Army/Marine Corps
Program**



**Provide residual
capability to operational
units including Tactics,
Techniques and
Procedures (TTPs)**

**Set the stage
for rapid acquisition
of selected technologies**

Advanced technologies and concepts for MOUT dominance

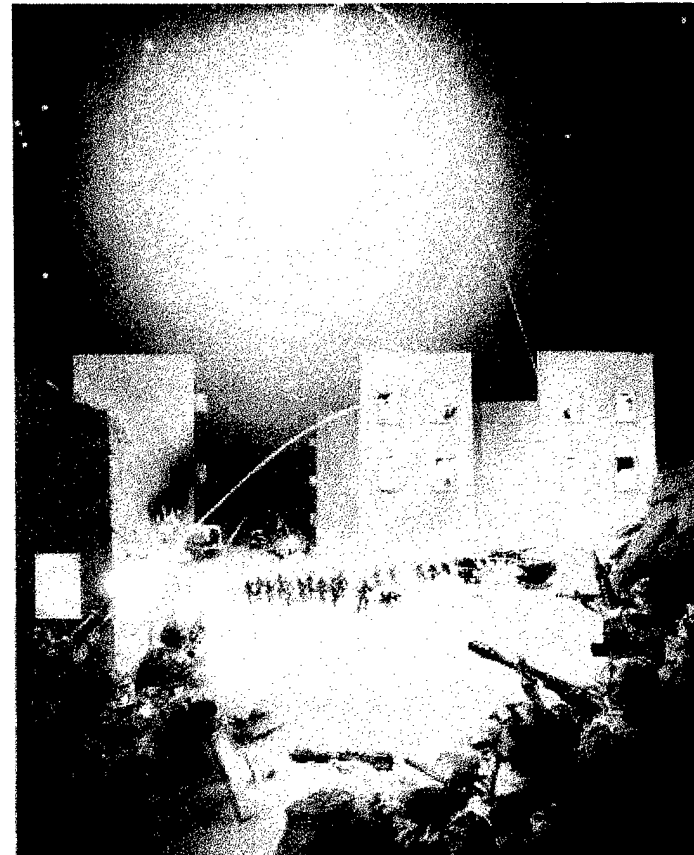


MOUT ACTD Technical Approach



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

- ID existing, emerging C4I, Engagement and Force Protection technologies
- Exploit NDI/COTS/GOTS items, mature R&D efforts and other TDs and ATDs
- Integrate components in MOUT System of Systems
- Use M&S to: facilitate systems integration; quantify combat performance; develop tactical employment
- Conduct live simulations/field experiments: assess technologies; operational concepts; TTPs



Advanced technologies and concepts for MOUT dominance



ACTD Characteristics



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

- **Allows the User to gain an understanding and evaluate the military utility of a product before committing to acquisition**
- **To develop corresponding concepts of operation and doctrine that make the best use of the new capability**
- **To provide residual operational capabilities to the forces**

...ACTDs provide a mechanism for intense involvement of the warfighters while incorporation of technology into a warfighting system is still at an informal stage...

Advanced technologies and concepts for MOUT dominance



MOUT ACTD



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

PROGRAM:

- **Soldier System Command Program**
- **Major funding in FY 98, 99, 00**
- **Highly Visible OSD Level Program**
- **ARDEC has mission for 11 of 32 program requirements**
- **A Lethality study is being conducted to quantify how well existing weaponry performs in the MOUT environment**

ARDEC GOAL:

- **Search out and identify Engagement technologies relative to MOUT**
- **Act as Lead in Engagement Activities for the ACTD Manager**
- **Showcase Engagement products from Government and Industry**

Advanced technologies and concepts for MOUT dominance



Engagement Requirements



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

Requirement number Description (Priority of 32)

R25	Non-lethal Munitions	(2)
R16	Detect booby traps	(7)
R27	Breach walls, floors, ceilings	(9)
R29	Precision Guided Mortar Family	(10)
R30	Non-explosive Breach	(16)
R34	Stun Grenades	(20)
R37	Point Munition	(21)
R31	Blunt Impact Training Munition	(22)
R21	Hands-free Sling	(24)
R8	Remote Marking	(26)
R24	“Soft” Round	(na)

Advanced technologies and concepts for MOUT dominance



Experimentation Plan



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

ARMY 1 21 Jan 98 R#8, 12, 13, 26, 31	ARMY 2 27 May 98 R# 14, 15, 24, 35	RFPI 22 Jul 98 R#12, 14, 15, 26, 30, 35	ARMY 3 09 Sep 98 R# 3, 16, 31, 42
ARMY 4 01 Nov 98 R# 5, 27, 40	ARMY 5 01 Feb 99 R# 8, 29, 37, R#26 revisit	ARMY 6 01 May 99 R# 1, 3, 41, R# 13 revisit	
USMC 1 27 Apr 98 R# 10, 30	USMC 2 01 Aug 98 R# 11, 28, 34	USMC 3 01 Jan 99 R# 2, 7	USMC 4 01 Apr99 R# 4, 6, 33, 36

Advanced technologies and concepts for MOUT dominance



Experimentation plan



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

**[Http://yorktown.dc.isx.com/mout/](http://yorktown.dc.isx.com/mout/) -- MOUT ACTD Web Site URL,
Deficiencies and Requirements listed**

OTHER EXPERIMENTATION:

JOINT 1

01 Jul 99

Integration

JOINT 2

01 Sep 99

Integration

ATE*

3Q00

**Adv. Technology
Excursion**

CAPSTONE

4Q00

**Final at
JRTC**

VENUES:

ARMY - McKenna MOUT Site, Ft. Benning

USMC - Camp LeJeune, NC MOUT Site

Joint Readiness Training Center (JRTC), Ft. Polk, LA

Advanced technologies and concepts for MOUT dominance



Engagement Needs



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

R-31 for a Blunt Impact Training Munition

A solution which requires no weapon modifications is preferable to the current solution for which the upper receiver must be modified.

R-8 for Remote Marking

A marker material which provides high daytime visibility, ultraviolet reflection, a thermal and a low visible light signature with a duration measured in hours is desired.

R30 for Non-explosive Breach

A quick and stealthy means to open large numbers of interior doors (repeating use) is desired.

Advanced technologies and concepts for MOUT dominance



Engagement Needs



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

R-16 for booby trap detection

A very difficult problem; the materiel solution for one type of booby trap could well be the cause for initiation of another type. The search for materiel solutions continues.

R-37 for a point munition

There is no single solution to breach (man-sized hole) 36" of reinforced concrete, defeat bunkers, and defeat armored vehicles (100mm RHA). Partial solutions exist.

Advanced technologies and concepts for MOUT dominance



Selected Materiel Solutions



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

R27, 37 for breaching walls; R30 for breaching doors

Firesticks, Ti-B-Teflon hand-held rods producing a heat flux of 10 million Watts/sq. cm. at 7200 deg. F has been found for rapid rebar removal as well as melting of locks, hinges, burglar bars, etc. This is expected to be faster than explosive methods. There is no support equipment involved.

R37 for breaching 36" reinforced concrete (man-sized hole)

An explosive with the same approximate density of steel has been submitted as a materiel solution. It is coupled to the wall effectively by a high pressure backing charge.

Advanced technologies and concepts for MOUT dominance



The Way Forward



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

MOUT ACTD Web Site URL - <http://yorktown.dc.isx.com/mout/>

New Product Submission Form found there.

Your method to enter a potential materiel solution for consideration.

If you have a “better mousetrap”, a means will be found to experiment with your materiel solution, even for requirements where the Army or Marine Corps experiment has already been executed.

Advanced technologies and concepts for MOUT dominance



Thank You



Military Operations in Urban Terrain Advanced Concept Technology Demonstration

Aerojet

Alliant Techsystems

Defense Technology Corp.

GIAT Industries

High Energy Access Tools

IMI Services, USA, Inc.

Lockheed Martin Corp.

Longbow, Inc.

MK Ballistic Systems

Monterey Bay Corp.

Olin-Winchester

Ordnance Technology Associates

Orlando Technology Inc.

Powell River Laboratory

Rafael, Inc.

Schiebel Instruments, Inc.

SNC Industrial Technologies

Talley Defense systems

Tippman Pneumatics Co.

and many others

Advanced technologies and concepts for MOUT dominance